



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,709	08/18/2006	Frank K. Ko	DRED166US.NP	3697
26259 7590 05/07/2008 LICATA & TYRRELL P.C. 66 E. MAIN STREET MARLTON, NJ 08053				
EXAMINER MARTINEZ, BRITTANY M				
ART UNIT 1793		PAPER NUMBER		
NOTIFICATION DATE 05/07/2008		DELIVERY MODE ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

poreilly@licataandtyrrell.com

### Office Action Summary

**Application No.**

10/577,709

**Applicant(s)**

KO ET AL.

**Examiner**

BRITTANY M. MARTINEZ

**Art Unit**

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date 3/14/2007
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

Citation to the Specification will be in the following format (S. p. #, P) where # denotes the page number and P is the paragraph number. Citation to U. S. Patent literature will be in the format (Inventor, c. #, I. LL) where # denotes the column number and LL is the line number. Citation to foreign patent literature will be in the format (Inventor, p. P, I. LL) where P denotes the page number and LL is the line number.

### ***Status of Application***

1. **Claims 1-5** have been examined.

### ***Priority***

2. This application is a national stage entry of PCT/US04/37076, filed November 4, 2004, which claims priority from U.S. Provisional Application 60/517128, filed November 4, 2003.

### ***Information Disclosure Statement***

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states,

Art Unit: 1793

"the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

### ***Specification***

2. The disclosure is objected to because of the following informalities: it appears as if the word "strange" (S. p. 2, 0019) should be "strand;" "finess" (S. p. 2, 0022) appears to be spelled incorrectly; and there should be a comma following "armor" (S. p. 2, 0022).

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. **Claims 1-5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gould (*materialstoday*).

7. With regard to **Claims 1-5**, Gould discloses nanocomposite fibrils produced when a polymer solution containing nanoparticles and spider silk protein undergo electrostatic spinning. Gould further discloses altering the electronic, magnetic, biological, and structural functions of the nanocomposite fibers via utilization of different types and amounts of nanoparticles (Gould, p. 47, 5<sup>th</sup> paragraph). Gould further teaches spider silk useful in biomedical (Gould, p. 42, 1<sup>st</sup> paragraph; p. 45, 3<sup>rd</sup> paragraph) and ballistic protection (Gould, p. 42, 1<sup>st</sup> paragraph; p. 46, 1<sup>st</sup> paragraph) applications.

8. Gould does not explicitly disclose carbon nanotubes (**Claim 1**). However, carbon nanotubes are a well-known nanoparticle in the art, and it would have been obvious to one of ordinary skill in the art to modify the nanoparticle taught by Gould with carbon nanotubes because there would be a reasonable expectation of success.

Art Unit: 1793

9. **Claims 1 and 4** are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldstein (US 6,126,888) in view of Applicant's admitted prior art.

10. With regard to **Claim 1**, Goldstein discloses a fiber yarn may be prepared by mixing organic fibers such as rayon, silk, and KEVLAR with carbon nanotubes to form a composite yarn or fiber (Goldstein, c. 5, l. 33-36).

11. Goldstein does not explicitly disclose spider or silkworm silk (**Claim 1**) or a blast or ballistic protection device (**Claim 4**).

12. With regard to **Claim 1**, spider silk is a well-known high strength silk in the art, as evidenced by the admitted prior art disclosed in the instant specification (S. p. 1, 0004-0006).

13. With regard to **Claim 4**, blast or ballistic protection devices are merely known uses of silk fibers, as evidenced by the admitted prior art disclosed in the instant specification (S. p. 1, 0005-0006). The intended use of the composite fiber is not seen to limit the fiber itself.

14. Thus, it would have been obvious to one of ordinary skill in the art to modify the composite fiber of Goldstein with the spider silk and intended use of Applicant's admitted prior art because there would have been a reasonable expectation of success.

15. **Claims 3 and 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Goldstein (US 6,126,888) in view of Applicant's admitted prior art as applied to **Claim 1** above, and further in view of Smalley et al. (US 2003/0170166 A1).

Art Unit: 1793

16. The aforementioned applied art does not explicitly disclose a biomedical device (**Claim 3**) or an electroconducting fiber (**Claim 5**).

17. With regard to **Claim 3**, Smalley discloses carbon nanotubes as possible strengthening reinforcement in composite materials, wherein the carbon nanotube composite materials can be applied in biologically-compatible devices that are implanted into living organisms (Smalley, p. 6, 0047).

18. Thus, it would have been obvious to one of ordinary skill in the art to modify the composite fiber of the aforementioned prior art for use in the biomedical device of Smalley because there would be a reasonable expectation of success.

19. With regard to **Claim 5**, Smalley discloses carbon nanotubes as possible strengthening reinforcement in composite materials, wherein the "intrinsic electronic properties" of the carbon nanotubes make them electrical conductors (Smalley, p. 1, 0006; p. 7, 0047-0048).

20. Thus, the electroconductivity as taught by Smalley present in the composite fiber of the aforementioned prior art would have been obvious to one of ordinary skill in the art.

21. **Claims 1 and 4** are rejected under 35 U.S.C. 103(a) as being unpatentable over Glatkowski et al. (US 6,265,466 B1) in view of Applicant's admitted prior art.

22. With regard to **Claim 1**, Glatkowski discloses the formation of composite fibers containing polymeric materials including natural and synthetic polymers, as well as polymeric materials of plant, animal, or microbial origin (Glatkowski, c. 3, l. 5-57).

Glatkowski further teaches the composites may be formed into fibers via conventional processing methods (c. 4, l. 19-22).

23. Glatkowski does not explicitly disclose spider or silkworm silk (**Claim 1**) or a blast or ballistic protection device (**Claim 4**).

24. With regard to **Claim 1**, spider silk is a polymeric material of animal origin. Further, spider silk is a well-known high strength polymeric material in the art, as evidenced by the admitted prior art disclosed in the instant specification (S. p. 1, 0004-0006).

25. With regard to **Claim 4**, blast or ballistic protection devices are merely known uses of silk fibers, as evidenced by the admitted prior art disclosed in the instant specification (S. p. 1, 0005-0006). The intended use of the composite fiber is not seen to limit the fiber itself.

26. Thus, it would have been obvious to one of ordinary skill in the art to modify the composite fiber of Glatkowski with the spider silk and intended use of Applicant's admitted prior art because there would have been a reasonable expectation of success.

27. **Claims 2 and 5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Glatkowski et al. (US 6,265,466 B1) in view of Applicant's admitted prior art as applied to **Claim 1** above, and further in view of Senecal et al. (US 2001/0045547 A1).

28. The aforementioned prior art does not explicitly disclose electrospinning (**Claim 2**) or an electroconducting fiber (**Claim 5**).

Art Unit: 1793

29. With regard to **Claims 2 and 5**, Senecal discloses a process wherein composite fibers containing polymer materials and carbon nanotubes are formed via electrostatic spinning, providing inherent conductivity in the composite fiber (Senecal, "Abstract;" p. 3, 0027).

30. Thus, it would have been obvious to one of ordinary skill in the art to modify the composite fibers of the aforementioned prior art with the process of Senecal in order to process the composite into conductive fibers.

31. **Claim 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over Glatkowski et al. (US 6,265,466 B1) in view of Applicant's admitted prior art as applied to **Claim 1** above, and further in view of Smalley et al. (US 2003/0170166 A1).

32. The aforementioned applied art does not explicitly disclose a biomedical device (**Claim 3**).

33. With regard to **Claim 3**, Smalley discloses carbon nanotubes as possible strengthening reinforcement in composite materials, wherein the carbon nanotube composite materials can be applied in biologically-compatible devices that are implanted into living organisms (Smalley, p. 6, 0047).

34. Thus, it would have been obvious to one of ordinary skill in the art to modify the composite fiber of the aforementioned prior art for use in the biomedical device of Smalley because there would be a reasonable expectation of success.

***Conclusion***

1. No claim is allowed.
2. In general, prior art renders the claimed invention obvious.
3. Applicant is required to provide pinpoint citation to the specification (i.e. page and paragraph number) to support any amendments to the claims in all subsequent communication with the examiner. **No new matter will be allowed.**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRITTANY M. MARTINEZ whose telephone number is (571) 270-3586. The examiner can normally be reached on Monday-Thursday 7:00AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1793

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Wayne Langel/  
Primary Examiner, Art Unit 1793

BMM

/Brittany M Martinez/  
Examiner, Art Unit 1793